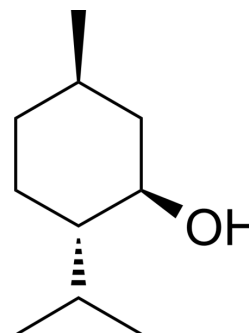


## (-)-Menthol

|                           |   |           |       |         |  |     |         |            |       |         |  |       |        |
|---------------------------|---|-----------|-------|---------|--|-----|---------|------------|-------|---------|--|-------|--------|
| <b>Cat. No.:</b>          | HY-75161  |           |       |         |  |     |         |            |       |         |  |       |        |
| <b>CAS No.:</b>           | 2216-51-5   |           |       |         |  |     |         |            |       |         |  |       |        |
| <b>Molecular Formula:</b> | C <sub>10</sub> H <sub>20</sub> O   |           |       |         |  |     |         |            |       |         |  |       |        |
| <b>Molecular Weight:</b>  | 156.27  |           |       |         |  |     |         |            |       |         |  |       |        |
| <b>Target:</b>            | TRP Channel; Endogenous Metabolite  |           |       |         |  |     |         |            |       |         |  |       |        |
| <b>Pathway:</b>           | Membrane Transporter/Ion Channel; Neuronal Signaling; Metabolic Enzyme/Protease   |           |       |         |  |     |         |            |       |         |  |       |        |
| <b>Storage:</b>           | <table border="0"> <tr> <td>Pure form</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>2 years</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 year</td> </tr> </table> | Pure form | -20°C | 3 years |  | 4°C | 2 years | In solvent | -80°C | 2 years |  | -20°C | 1 year |
| Pure form                 | -20°C   | 3 years   |       |         |  |     |         |            |       |         |  |       |        |
|                           | 4°C   | 2 years   |       |         |  |     |         |            |       |         |  |       |        |
| In solvent                | -80°C   | 2 years   |       |         |  |     |         |            |       |         |  |       |        |
|                           | -20°C   | 1 year    |       |         |  |     |         |            |       |         |  |       |        |



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 100 mg/mL (639.92 mM; Need ultrasonic)  
 H<sub>2</sub>O : 1.89 mg/mL (12.09 mM; ultrasonic and warming and heat to 60°C)

| Concentration | Mass      |            |            |
|---------------|-----------|------------|------------|
|               | 1 mg      | 5 mg       | 10 mg      |
| <b>1 mM</b>   | 6.3992 mL | 31.9959 mL | 63.9918 mL |
| <b>5 mM</b>   | 1.2798 mL | 6.3992 mL  | 12.7984 mL |
| <b>10 mM</b>  | 0.6399 mL | 3.1996 mL  | 6.3992 mL  |

Please refer to the solubility information to select the appropriate solvent.

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
 Solubility: ≥ 2.5 mg/mL (16.00 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
 Solubility: ≥ 2.5 mg/mL (16.00 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
 Solubility: ≥ 2.5 mg/mL (16.00 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

(-)-Menthol is a key component of peppermint oil that binds and activates transient receptor potential melastatin 8 (TRPM8), a Ca<sup>2+</sup>-permeable nonselective cation channel, to increase [Ca<sup>2+</sup>]<sub>i</sub><sup>[1]</sup>. Antitumor activity<sup>[1]</sup>.

#### IC<sub>50</sub> & Target

Human Endogenous Metabolite

#### In Vitro

(-)-Menthol (Menthol ) per se does not exhibit antiproliferative activity, but it is able to enhance 1α,25(OH)<sub>2</sub>D<sub>3</sub>-mediated

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growth inhibition in LNCaP cells. At high (-)-Menthol concentrations above 1.6 mM, the cells begin to detach from the culture dish<sup>[1]</sup>.

?(-)-Menthol (0.8 mM) can increase  $[Ca^{2+}]_i$  via transmembrane influx or store release pathways. Peak increase in  $[Ca^{2+}]_i$  was  $102.3 \pm 39$  nM (n=3) in (-)-Menthol alone and  $124.5 \pm 51$  nM (n=3) in combination of  $1\alpha,25(OH)_2D_3$  with (-)-Menthol, respectively [1].

?Combination of  $1\alpha,25(OH)_2D_3$  with (-)-Menthol? (0.8 mM) cooperatively modulates bcl-2 and p21 expression<sup>[1]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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## CUSTOMER VALIDATION

- Invest Ophthalmol Vis Sci. 2023 Jan 3;64(1):19.

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## REFERENCES

[1]. Park EJ, et al. Menthol Enhances an Antiproliferative Activity of  $1\alpha,25$ -Dihydroxyvitamin D(3) in LNCaP Cells. J Clin Biochem Nutr. 2009 Mar;44(2):125-30.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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